THE JOURNAL OF

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

(Including Transactions)

Volume 36 OCTOBER 1914 Number 10

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COMING MEETINGS OF THE SOCIETY

October, Boston, Mass. Subject: Flow Meters. The date of the meeting can be secured from the Secretary of the Boston Committee on Meetings.

October 8, *Philadelphia, Pa.* Joint meeting with the Franklin Institute. Paper: Recent Development in Cast Iron Manufacture, by J. E. Johnson, Jr.

October 15, *Cincinnati, Ohio.* Joint meeting with Engineers Club of Cincinnati. Address: The Testing of the Motor Vehicle Engine, by Frederick R. Hutton.

October 22, *Buffalo, N. Y.* Address: Engineers and Public Service, by Charles Whiting Baker.

October 22, *St. Paul, Minn.* Subject: Power Developments on the Mississippi River between St. Paul and Minneapolis, Adolph F. Meyer.

November 10, *San Francisco, Cal.* Subject to be announced.

November 18, *New Haven, Conn.* Fall meeting with afternoon and evening sessions, Mason Laboratory of Mechanical Engineering, Sheffield Scientific School, Yale University. Subject: The Generation and Application of Electricity in Manufacturing.

Annual Meeting, December 1–4, *New York City.* There will be a session on Engineering Metals, particularly Steels of Construction and for Tools; Cast Irons; and Alloys of Copper, Tin and Aluminum, etc.; and the entire day on Thursday, December 3, will be devoted to the general subject of Engineering in connection with the Administration of a City, the meeting to be opened by the Mayor of the City of New York. The sub-committees on Railroads and Machine Shop Practice are arranging for sessions, and there will be one session at which several important miscellaneous papers will be read.

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THE ANNUAL MEETING

DECEMBER 1-4, 1914

IT is expected that there will be two features of the Annual Meeting which alone will make the meeting distinctive and of wide-spread interest. The first of these is the important all-day session on Thursday, December 3, on the Engineer in Public Service, when papers upon municipal engineering and related topics will be presented. Contributions have been arranged for upon a wide variety of subjects such as is indicated in the following tentative list: The collection and disposal of refuse from an engineering standpoint and the utilization of municipal wastes; the handling of sewage sludge; the training of municipal employees; the cleaning of public buildings; the future of the police arm presented from the engineering side; the problem of organization as related to the highway department; controlling factors in municipal engineering; cleaning filter sands; the design and operation of a municipal electric light plant; and municipal colleges in Germany. The session will be opened by John Purroy Mitchel, Mayor of the City of New York. Arrangements for the session are being completed by the Committee on Public Relations, and it promises to be one of the most attractive and largely attended meetings which the Society has held.

The other feature referred to is that of the reports which are expected for the Wednesday morning session. As is known to the membership, two of the most important reports ever undertaken by the Society are nearing completion, and it is hoped that both can be presented at the coming Annual Meeting.

One report is that of the Power Test Committee which was published in preliminary form in The Journal nearly two years ago. Since then the report has been thoroughly revised and is now being put into its final form. It attempts to standardize the methods of testing the various types of prime movers and auxiliary apparatus, and is so broad in its scope that it will interest a very large number of members of the Society, and it is expected will constitute one of the most comprehensive publications that the Society has ever issued.

The other report, that of the Committee on Standardization of Steam Boilers, is equally voluminous, and is also approaching its completed state, as recounted elsewhere in this number of The Journal. Its value both to engineers and the public at large is so great that it can scarcely be estimated, involving as it does every item of consequence in relation to the safety of steam boilers, from the specifications of steel to the qualifications of the men in the boiler room.

An interesting session, in charge of the sub-committee on Iron and Steel, will be devoted to subjects relating to Cast Iron and Steel from the standpoint of the mechanical engineer. New developments in the field of engineering metals will be dealt with in a way to bring out and make a matter of common knowledge these recent advances. Other sessions in charge of sub-committees will be those on Machine Shop Practice and on Railroads. At the latter there will be a report by the sub-committee on Railroads, on the Steam Locomotive of Today. Copies of individual papers have been received from other sub-committees, and one session will be devoted to a number of miscellaneous papers of exceptional merit. The subjects of these will be announced in The Journal for November, when the complete program for the meeting will be published together with abstracts of such papers as are to be printed in advance of the meeting.

As has been the custom for some years past, the President's Reception will be given on Tuesday evening during the convention, and on Wednesday evening there will be a lecture upon a subject to be announced. The reunion this year is expected to take the form of a dinner dance at the Hotel Astor, and this will constitute the chief social event of the meeting. Covers will be laid for at least 350, and there will be dancing between courses. The grand ball room at the Astor has been engaged for this occasion.

LOCAL MEETINGS

A number of meetings in local centers are announced for October and are evidence of the renewed activities of the committees in charge. In several cities, for example in Buffalo, as reported in the September issue of The Journal, plans have already been made for the entire season, including subjects and speakers.

A joint meeting with the Franklin Institute will be held in Philadelphia on October 8, with a paper to be presented by J. E. Johnson, Jr., of New York, on Recent Development in Cast-Iron Manufacture. Mr. Johnson will discuss the present theory of cast iron, explaining its deficiencies and pointing out the unknown or neglected quantities which cause them. He will connect the completed explanation with the known facts of practice in regard to coke and charcoal irons and describe the method for converting ordinary coke iron into a product superior to the best charcoal iron at low expense. Samples of the converted material will be shown, together with photomicrographs of its structure. The lecture will be illustrated with lantern slides.

The meeting in Cincinnati, on October 15, will also be a joint meeting, in this instance with the Engineers Club, and Prof. F. R. Hutton will be the speaker of the evening. His subject will be the Testing of the Motor Vehicle Engine, and the address will be illustrated by lantern slides. The Engineers Club will as usual be the meeting place.

Charles Whiting Baker will address the Buffalo meeting on October 22, taking up the timely subject of the Engineer and Public Service; and the St. Paul membership will discuss the paper by Adolph F. Meyer, Power Developments on the Mississippi River between St. Paul and Minneapolis, on October 22. Meetings will also be held in New York and Boston, but neither date has as yet been announced. The Boston meeting will take up the subject of Flow Meters.

CURRENT AFFAIRS

Notwithstanding the fact that any discussion of financial matters may give some the impression of unsound conditions, we are glad to take this opportunity to emphasize a contrary state of affairs.

Our Society is one of the strongest financially in the world. We have assets amounting to considerably over a half-million dollars. These include principally a one-third interest in the property of the United Engineering Society; all the trust funds, amounting to over $40,000, which are invested in non-taxable bonds; and about $30,000 in cash and stores. In addition to dues, there has also been an income for a number of years from advertising in The Journal.

We have, furthermore, financed our small indebtedness, $60,000, on the land occupied by our building, by issuing certificates of indebtedness, as it was considered just to distribute the payment over a period of years. The Society has pledged itself to retire these certificates at the rate of $6000 per year. As an earnest of this promise and offsetting the indebtedness, we have $24,000 in a special fund, all invested, so that there are, in other words, four years' payments in hand now. This is not, however, available to be used for current expenses.

On account of the conditions prevailing in the world generally, the Finance Committee feel that the program for the year should be conservative. In the first place, there will be an absolute shrinkage in dues, and, second, the income from publications will be less; so, that, together with a probable reduced income from miscellaneous sources our total income will be $15,000 less than it would be under favorable conditions. Because, therefore, of the reduced income and the restrictions of the Finance Committee, all the Society's activities must share in reduced appropriations.

One of the phases of the work considered by the Council to be of fundamental interest and benefit to the membership, is the holding of meetings in the various cities. Wherever a slight curtailment in appropriations for these meetings shall prove necessary, it is hoped that the local committees will realize that it is not because of lack of interest nor of financial unsoundness in the Society's affairs.

ANNUAL MEETING

The program for the Annual Meeting promises to be one of the most interesting the Society has ever enjoyed. Special emphasis should be laid upon the all-day session of December 3, devoted to Public Service. This is in line with the efforts of the Society to interest the engineer to a greater extent in civic affairs, as well as to bring to the attention of the public the place he should occupy in such affairs.

COMMITTEE REPORTS

Among the reports which will come before the Annual Meeting for final discussion and which promise to promote great interest are those on Power Tests and Boiler Specifications.

With regard to the latter, during the month past a very widely attended public hearing has been held, lasting several days, which has resulted in unanimity on the part of all boiler interests in America and the interests which manufacture the materials that go into the boiler. The importance of this code lies in its relation to pending legislation. Some members of the Society have opposed the code because it does involve legislation, but the whole trend of the times is toward the establishing of our laws respecting materials upon a good engineering basis rather than allowing them to be framed by men untrained in technical matters.

INTERNATIONAL ENGINEERING CONGRESS

The five societies acting as hosts of the International Engineering Congress have formed a joint reception committee, consisting of Alex. C. Humphreys, chairman, Walter M. McFarland, vice-chairman, Charles Warren Hunt, secretary, William L. Saunders, treasurer, Wm. H. Wiley, Eben E. Olcott, George F. Kunz, Bradley Stoughton, E. D. Meier, Ambrose Swasey, Calvin W. Rice, Howel H. Barnes, Jr., George F. Sever, F. L. Hutchinson, Stevenson Taylor and Daniel H. Cox.

George M. Brill, a member of the American Institute of Electrical Engineers and of our Society, has been appointed director, with headquarters in the Engineering Societies Building. Mr. Brill will organize, under the auspices of this general committee, reception committees in each of the big cities of the union. These reception committees will be representative of all that is best in civic life as well as in the engineering field.

Although it is reasonable to expect that the war in Europe will interfere with the original plans of the Congress, letters from officials of the Congress and also from the Verein deutscher Ingenieure indicate that they are going ahead with their arrangements.

RELATIONS WITH SOUTH AMERICA

The present situation seems to offer an opportunity to develop our cultural relations with South America through the medium of the Panama-Pacific Exposition and the Engineering Congress. The Secretary of the Society has been active for a number of years in trying to promote these relations. This year, for the first time, he has succeeded, and the United States has issued through its State Department the necessary formal invitations to the Governments of Central and South America, to attend a Pan-American Scientific Congress, to be held in Washington in October 1915. It is expected that the national engineering societies will be invited to assist the Government in the conduct of this congress.

CALVIN W. RICE, *Secretary*

REPORT OF THE NOMINATING COMMITTEE

TO JAMES HARTNESS, PRESIDENT OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS:

Your committee appointed to nominate officers for the ensuing year has completed its work and herewith submits its report:

Your committee departed from the custom followed in the Society for some years, of sending a circular letter to the entire membership inviting suggestions as to the nominees. Experience has shown that only a small percentage of the membership, less than one-sixth in any one year, make any reply to these circulars. Most of those who do reply, moreover, send merely off-hand suggestions. It is not to be expected that an individual member will give the time, thought and study to the various questions in connection with the nominations that is essential if wise choices are to be made.

Further than this, because so few members take the trouble to answer the circular letter, the opportunity is open for any member or group of members to send out letters asking that a particular candidate be recommended to the Nominating Committee, with the result that that committee may be flooded with what is apparently an overwhelming and spontaneous demand from the membership that this candidate's name should be placed upon the ticket.

For these and other reasons, your Nominating Committee believed it desirable that a departure be made from the custom of sending out a general invitation to the membership for suggestions. It is to be remembered that the procedure from which we have departed this year is a mere custom introduced by an earlier Nominating Committee. It is neither required nor authorized by our Constitution and By-Laws, and former committees which have followed that method have done so in the exercise of the discretion vested in them; just as the present committee has thought best to abandon the custom this year.

But there is no doubt that your committee and any nominating committee, needs aid and advice from outside its own membership in order to make a wise selection of candidates. The members of the committee, therefore, conferred individually with and asked the advice of various members of the Society, selecting those who were known to be especially interested in the Society's work and willing to take time to give careful thought to matters affecting its welfare. Personal letters were also sent by the members of the committee to members of the Society representative of different branches of the profession and resident in different parts of the country, in order to make the advice thus obtained truly representative of all sections of the membership.

From the results we have obtained, we believe this system of seeking advice from members, each of whom is requested to give careful thought to the matter, affords a far safer, more constructive and more discriminating aid to a nominating committee than the old plan of a printed circular letter sent broadcast to the entire membership.

The only embarrassment your committee has experienced has been from the number of well-qualified candidates for the various offices presented for our consideration. In making our selection we have been governed not alone by the ability of the candidates to render useful service to the Society and their prominence in the profession, which makes the nomination deserved, but by the propriety of giving due representation in the Council to different geographical sections and also to different branches of the profession.

In presenting the candidates we have chosen, moreover, we present also a brief summary of their respective professional careers, for the benefit of those members who may not know them personally. This seems to us essential to enable members to judge intelligently in casting their letter ballot in the election.

The candidates we now present are as follows:

For President:

DR. JOHN A. BRASHEAR, Pittsburgh

For Vice-Presidents:

HENRY HESS, Philadelphia
GEO. W. DICKIE, San Francisco
JAMES E. SAGUE, Poughkeepsie

For Managers:

CHARLES T. MAIN, Boston
SPENCER MILLER, New York City
MAX TOLTZ, St. Paul

and to fill the unexpired term of the late Alfred Noble:

MORRIS L. COOKE, Philadelphia

For Treasurer:

WM. H. WILEY, New York City

Respectfully submitted,

JOHN E. SWEET, *Chmn.*
CHARLES WHITING BAKER, *V-Chmn.*
JOHN H. BARR
A. M. HUNT
P. W. GATES
} *Nominating Committee*

An account of the professional career of each of the nominees follows:

JOHN A. BRASHEAR

John A. Brashear was born in Brownsville, Pa., in 1840 and educated in the public schools. He learned the machinist's trade and from 1860-1870 worked in the rolling mills of Pittsburgh. The study of astronomy, however, had been his hobby from boyhood, and all his spare time was devoted to it. In 1870 he attracted the attention of Langley, then head of the Allegheny Observatory, and through the assistance of Mr. William Thaw, one of the observatory patrons, set up a shop in Allegheny for the manufacture of astronomical instruments. In a very short time he became widely known as an expert in the development and manufacture of astronomical instruments of precision, and it is safe to say that a history of the work of his shop would closely approximate the history of astronomy during the last thirty years.

Perhaps his most important achievement has been in connection with the design and development of the spectroscope for astronomical uses, particularly with reference to the mechanical features. In 1888 he completed the spectroscope for the 36-inch telescope of the Lick Observatory, furnishing the mechanical parts, and at the same time a complete small spectroscope, including the prisms and all other optical parts. The excellence of the work which has been done by Professor Keeler at the Lick Observatory is freely attributed to Dr. Brashear's skill and genius, and many of the spectroscopes from the principal observatories of the world have been sent to Dr. Brashear to be remodeled.

Dr. Brashear's more purely scientific work also brought recognition and about the time of his removal to Allegheny he was given an appointment in the University of Western Pennsylvania of which the Allegheny Observatory was a department. From 1898 to 1900 he was acting director of the Allegheny Observatory and has always kept in touch with its development, and through his efforts it has been put in every possible way at the disposal of the public. For a number of years past Dr. Brashear has also been a trustee of the Carnegie Institute of Technology, and it is said that he has done more for the cause of education in Pittsburgh than any three other men. Several years ago a friend placed in his hands an endowment fund of $250,000, to be used for the advancement of the public schools, as a result of which 600 teachers have been sent to different parts of the country for rest and study, bringing back with them new ideas and greater enthusiasm.

Dr. Brashear is a fellow of the American Association for the Advancement of Science and the Royal Astronomical Society of Great Britain; is a past-president of the Engineers Society of Western Pennsylvania and the Pittsburgh Academy of Arts and Sciences; and is a member of the British Astronomical Association, the Société Astronomique de France, the Société de Belgique, the American Philosophical Society, the Astrophysical Society of America, the National Geographic Society, and an Honorary Member of the Royal Astronomical Society of Canada. He has been honored with the degree of LL.D. by Washington and Jefferson College and by Wooster University, and with the degree of Sc.D. by Princeton University and the Western University of Pennsylvania. He was made an Honorary Member of this Society in 1908.

HENRY HESS

Henry Hess was born in Darmstadt, Germany, in 1863, coming to the United States shortly thereafter. He received his education in the New York schools, with several additional years of schooling in Germany. He began his professional career upon his return to the United States in 1880, working successively as machinist, draftsman, designer and superintendent, among others with the Pond Machine Tool Company, Worcester and Plainfield, the Watervliet Arsenal, U. S. A., on the design of special heavy ordnance machine tools, the Niles Tool Works Company, the Bureau of Construction and Repair, U. S. N., and spent several years in Germany as consulting engineer and later managing director of the German Niles Tool Works Company of Berlin. In 1904 he founded The Hess-Bright Manufacturing Company, inaugurating the American heavy ball bearing industry. He disposed of these interests in 1912 and formed The Hess Steel Castings Company and The Hess-Ives Company.

Mr. Hess is past-president of the Society of Automobile Engineers and of the Engineers Club of Philadelphia, and is a member of the American Institute of Mining Engineers, the American and International Societies for Testing Materials, the American Electrochemical Society, the Verein deutscher Ingenieure, the Institute of Automobile Engineers of Great Britain, and a life member of the Schiffbautechnische Gesellschaft. He has been an occasional contributor to various technical publications as well as to the Transactions of the various organizations to which he belongs.

G. W. DICKIE

G. W. Dickie was born in Arbroath, Scotland, July 17, 1844, and was educated at Tayport, Fife. From 1860 to 1864

he served a special apprenticeship in the locomotive and marine shops of the Edinburgh, Perth and Dundee Railway, now known as the North British Railway, serving an additional two years in the construction of spinning mill machinery at Monifieth, Scotland. He was employed in the shipyard of Wm. Dickie & Sons, Tayport, Scotland, from 1866 to 1869.

In 1869 Mr. Dickie came to the United States and was employed as an engineer for the Risdon Iron Works of San Francisco, where besides having charge of their marine work he took a leading part in the design and construction of the heavy machinery for the Comstock Mines. He subsequently became engineer-in-chief of the Risdon Iron Works and remained in their employ until 1883, when he became director and manager of the newly formed Union Iron Works Company. During his connection with this company twenty-three war vessels and about sixty merchant vessels were built, in addition to other large undertakings.

Since 1905 Mr. Dickie has been engaged in consulting work, for the most part in connection with marine engineering and naval architecture in San Francisco. He superintended the building of the steamer President at the yard of the New York Shipbuilding Company, and the design and construction of the steamers Governor and Congress.

JAMES E. SAGUE

James E. Sague was born at Poughkeepsie, N. Y., July 20, 1862. He is a graduate of the Stevens Institute of Technology. His thesis, a Report on the Trial of the Steamer City of Fall River, was published in the American Engineer and the Journal of the Franklin Institute. From 1883-1891 he was engaged in railroad work, acting successively as draftsman, engineer of tests, general shop foreman, and master mechanic. He then engaged in locomotive building, first with the Schenectady Locomotive Works and later with the American Locomotive Company, first as mechanical engineer, and later as assistant vice-president and vice-president, having charge of engineering and manufacturing.

When the public utilities of New York were placed under the control of Public Service Commissions in the first administration of Governor Hughes, Mr. Sague was appointed a member of the commission for the Second District, controlling all public utilities in New York State outside of New York City. He is the only engineer who has been appointed on the New York Commissions and has held the office for seven years.

CHARLES T. MAIN

Charles T. Main was graduated from the Massachusetts Institute of Technology in 1876 and remained as assistant in the department of mechanical engineering until 1879. He was for several years draftsman of the Manchester Mills, Manchester, N. H., and subsequently acted as engineer, assistant superintendent and superintendent of the Lower Pacific Mills, Lawrence, Mass. In 1892 he entered into consulting practice with F. W. Dean under the firm name of Dean & Main. Since 1907 he has been practicing under his own name, with offices in Boston.

Mr. Main has designed and supervised the construction of many industrial plants, also steam power and water plants, and has done a large amount of expert work, such as consultation, reports on various projects, valuations and on cases as a witness or referee. He is a past-president of the Boston Society of Civil Engineers, a term member of the Corporation of the Massachusetts Institute of Technology, and is now president of the Engineers Club of Boston.

SPENCER MILLER

Spencer Miller was born in Waukegan, Ill., in 1859, and was educated at the Worcester Polytechnic Institute, graduating in 1879. He entered the employ of the Link-Belt Company, Chicago, and while here designed a number of rope drives and apparatus for handling cargo from steamships, which is still in use in Chicago. He also devised a method of equalizing the grip of the ropes on the pulleys of different diameters by varying the angles of the grooves.

He has been for 26 years associated with the Lidgerwood Manufacturing Company of New York. At the time of his first connection with them the company had just begun to manufacture overhead cableway systems employing the crude chain connected fall rope carriers. Mr. Miller developed an entirely new system known as the button stop fall rope carrier system, which has been employed in the construction of U. S. fortifications, dams, filtration beds, sewers, open pit mining, and the Gatun Locks of the Panama Canal. He also perfected a system for log skidding by steam in the form of a cableway.

During the Spanish-American War he developed the marine cableway in solution of the problem of coaling at sea, and this has been used in the navies of Great Britain, Japan, Russia and Italy as well as the United States. The marine transfer for broadside coaling of ships in harbors is also one of his inventions. His most recent contribution is an automatic tension engine which makes it possible to operate a breeches buoy apparatus between two ships in the heaviest sea.

Mr. Miller is a member of the American Society of Civil Engineers, the Society of Naval Architects and Marine Engineers, the American Institute of Mining Engineers, and the Canadian Institute of Mining Engineers.

MAX TOLTZ

Max Toltz was born in Coeslin, Germany, in 1857, and was graduated from the Royal Polytechnical College of Berlin in 1878. He came to the United States in 1882 and became associated with the St. Paul, Minneapolis & Manitoba Railway, now the Great Northern, serving successively as draftsman, assistant engineer, bridge engineer, and mechanical engineer. In the latter capacity he had charge for four years of the motive power department.

From 1903 to 1905 he acted as consulting engineer of the Canadian Pacific Railway, during which time he built the Angus Shops near Montreal and also those at Winnipeg. He also acted as consulting engineer for the Erie Railroad at this period. In 1905 he became vice-president and general manager of the Manistee & Grand Rapids Railway, acting also as consulting engineer for different railroads at the same time. Since 1908 he has conducted a private practice, including the work of consulting engineer for the Great Northern Railway, the Northern Pacific Railway, the Chicago, Michigan & St. Paul and the Butte & Anaconda Railway, reporting especially upon the electrification of steam roads, and also specializing in power plants, grain elevators and large handling plants, and iron ore docks.

MORRIS L. COOKE

Morris L. Cooke was born May 11, 1872, in Carlisle, Pa., and received his education at Lehigh University, from which he was graduated with the degree of M.E. in 1895. He served an apprenticeship in the machine shop at Cramps Shipyard, Philadelphia, and later worked as journeyman machinist at the Southwark Foundry, Philadelphia. In 1896 he became engineer for the Acetylene Company, Washington, D. C., and in 1898 assistant engineer in the United States Navy, serving as engineer watch officer on the U. S. S. Miantonomoh and chief engineer on the U. S. S. Eagle during the war with Spain. Following the war he engaged in commercial organization work and since 1905 has acted as consulting engineer on matters of management, specializing in printing and the allied trades. Mr. Cooke conducted an inquiry on collegiate administrative methods for the Carnegie Foundation and the report has been issued under the title, Academic and Industrial Efficiency. Mr. Cooke is at present Director of Public Works for the city of Philadelphia.

WM. H. WILEY

Wm. H. Wiley was born July 10, 1842, in New York City, and received his A.B. degree from the College of the City of New York in 1861, and the degree of C.E. from Rensselaer Polytechnic Institute in 1866. He also studied as a special student at the Columbia School of Mines in 1868.

At the outbreak of the Civil War he joined the Seventh Regiment of New York Volunteers, and in 1862 was made first lieutenant. When the regiment was mustered out in 1864 he was given the title of Major U. S. V.

Since 1876 Major Wiley has been a publisher of scientific works. He served as a member of the 58th, 59th and 61st congresses, from New Jersey. In 1897 he was president of the International Jury of the Brussels Exposition, and was a member of the Superior Jury, Brussels. He was a commissioner from New Jersey at the St. Louis Exposition in 1904.

Major Wiley is the author of a book on Yosemite, Alaska, and Yellowstone, published in 1888, and has acted as New York correspondent for London Engineering. He is a member of the American Society of Civil Engineers, the American Institute of Electrical Engineers, the American Institute of Mining Engineers, the American Association for the Advancement of Science, the National Geographic Society, the Order of Leopold, Belgium, and the Loyal Legion.

ALFRED FERNANDEZ YARROW ELECTED HONORARY MEMBER

At the meeting of the Council in July, Alfred Fernandez Yarrow of Blaneford, Stirlingshire, Scotland, was elected to Honorary Membership. Mr. Yarrow is known as one of the most eminent marine engineers, having been among the earliest to enter the field of construction of light, high-speed launches and torpedo boats. He is also noted for the scientific solution of the reduction of vibration in reciprocating engines. He, with the late Dr. Schlick, was the inventor of the method of balancing engines known as the Yarrow-Schlick-Tweedy system, which for almost twenty years past has been applied to large reciprocating engines in high grade ships. He was also a pioneer in experimentation on the subject of circulation in boilers.

Mr. Yarrow has done much in the line of improvements in machinery and hulls. He is also a leader in the educational field, particularly that of arranging for part time in college and part time in shop work. He presented to the British nation the experimental tank at the National Physical Laboratory, which is about 150 feet long by 50 feet wide, and is fully equipped with overhead running trolleys for the making of all manner of experiments in connection with marine design. He has also for many years maintained a marine hospital and sanitarium at his own expense.

He is a member of the Institution of Civil Engineers, the Institution of Mechanical Engineers, the Institution of Naval Architects and Marine Engineers, and a member of the General Board of the National Physical Laboratory.

THE PUBLIC HEARING OF THE BOILER SPECIFICATIONS COMMITTEE

Held September 15, 1914 in the Rooms of the Society

The public hearing held September 15 and 16, 1914, by the Boiler Specifications Committee has been successful in clearing up many of the important features of the problem that had been in question.

As announced in the September issue of The Journal, further criticisms and suggestions had been requested from all who had not previously sent in a statement or who wished to make additional recommendations, and a wide and general response was received, covering the subjects in question so comprehensively and completely that much was accomplished at the hearing. The ready response and the general spirit of coöperation in evidence at the hearing afforded the committee much satisfaction. The ground covered was so extensive that it is the committee's expectation that its preliminary report may soon be completed.

As previously stated, the tentative draft of the committee's report, which had been printed in limited edition and issued to authorities on boiler subjects, was merely a suggested form to serve as a basis of study and criticism, and it is now being revised and rewritten to incorporate the various suggestions and recommendations received. It had been formulated with the boiler code of the State of Massachusetts as a foundation; these rules in general have already been adopted and successfully applied in the State of Ohio, the City of Detroit, and elsewhere, and thus carry the endorsement of actual application and use. When the demand arose for a code to be introduced into other states, it was naturally the desire that it be based upon the Massachusetts Code with such modifications and additions as were necessary to render it complete and up-to-date in every particular. To accomplish this, the committee has

concentrated its effort for over two years and has endeavored to render its proposed code a standard of the highest order and effective for maximum protection to life and property.

The hearing was the result of a resolution passed at the Spring Meeting of 1914 at St. Paul-Minneapolis, at which was felt the advisability of special meetings to grant all those interested the opportunity of discussing the many details of the problem, and to secure in this manner the best possible adjustment of differences that might arise. The far-reaching effect of some of the important elements of the new code was shown by the great amount of interest taken in the preliminary discussion at St. Paul and the need of much careful study revealed. The date of the hearing was set for September 15, and the meeting was called to order by the Chairman, John A. Stevens, in the auditorium on the fifth floor at 10.30 a.m. There were about 150 in attendance, including representatives from a number of organizations and engineering associations, from manufacturers of boilers and their constituent parts, from the boiler insurance companies and from legislative bodies in many states. Six members of the Boiler Specifications Committee were present as follows: John A. Stevens, Chairman, Wm. H. Boehm, R. C. Carpenter, Richard Hammond, C. L. Huston, and E. F. Miller.

The Chairman, Mr. Stevens, in calling the meeting to order, drew attention to the large number of boiler explosions that have occurred in this country with attendant fatalities and injuries, and expressed forcibly the necessity for better boilers and better conditions governing their operation to prevent this loss of life and property. The committee pointed out that this could be accomplished only by the introduction of uniform boiler laws in all states of the Union and their uniform enforcement. Referring to his experience as a member of the Massachusetts Board of Boiler Rules in formulating and introducing the first comprehensive and complete Code of Boiler Rules established in this country, he explained that the causes of this legislation lay not only in the many serious boiler explosions which had occurred at Brockton, Lynn, and elsewhere shortly before, but also in the difficulties resulting from lack of uniformity in the requirements of the various state inspectors. The committee showed that not only the manufacturers, but also the users of boilers deserve some freedom from the annoyances attending lack of uniformity among the many boiler inspectors in charge of the state inspections. Prior to the inauguration of the Code of Boiler Rules, where there were from 10 to 15 inspectors, there were 10 to 15 boiler laws. It was to avoid this confusion that the Boiler Code was formulated and similarly it now becomes a national duty to prevent confusion among the various states of the Union by formulating first a satisfactory Code of Boiler Rules and second, putting it into effect uniformly throughout every state.

Mr. Stevens stated that it was the policy and desire of the committee to receive and consider any and all suggestions for the Code that would make for greater protection of human life and property, and although the committee having scoured the country to obtain everything that would be of value for their report, considered that it had done its best, further suggestions and criticisms were expected and would be gladly received. The committee wished it to be understood that any features of the report that proved objectionable would be changed or omitted, but they desired to impress the fact that boilers can be properly built for any condition of operation and for almost any pressure for an increase of only 10 to 20 per cent in cost. They emphasized the fact that good boilers can and should be provided for by this Code.

The Chairman then introduced Edw. H. Wells, President of the Babcock & Wilcox Company, who spoke on the situation from the standpoint of the boiler manufacturer. He expressed himself as heartily in accord with the movement for standard specifications for steam boilers, first because he hoped that it might lead to the building of better and safer steam boilers, and second, because he hoped it might lead to uniformity in boiler laws throughout all states of the Union and thus eliminate much trouble and annoyance for the boiler manufacturers. He believed that this work must be done because it was inevitable, and that The American Society of Mechanical Engineers was the association that must do it. He bespoke for the committee the hearty support of the boiler makers, the boiler users, the manufacturers supplying boiler materials, the boiler insurance companies and all who were interested directly or indirectly in the subject.

Thos. E. Durban was then called upon and expressed his hearty approval of the committee's action in formulating the Code of Boiler Rules. He referred to the difficulties which he had experienced in connection with his work as chairman of the committee of the National Tubular Boiler Manufacturers Association in agitating the matter of uniform boiler laws. He showed the far-reaching effect of the present lack of uniformity and expressed the opinion that uniformity among the state boiler laws was an absolute necessity. He urged also the necessity for immediate action in this matter and pointed out the fact that five states are now preparing to enact legislation of this character.

Among the others who addressed the meeting were L. E. Connolly and W. H. Broderick representing the American Boiler Manufacturers Association, F. R. Lowell, Chas. S. Blake, Alex. C. Humphreys, E. T. Child, I. E. Moultroup, E. B. Katte, Edgar Marburg and C. D. Young.

The hearing first took the form of a discussion of methods of procedure in order to satisfy all inquirers and give every one interested an opportunity to be heard. After considerable discussion, it was decided

to take up all written discussions first, giving others the opportunity to be heard afterward. It was subsequently ruled that another public hearing should be held if the results of this demonstrated the need thereof, and that the committee should sit in conference with any interested body and give the representatives of that body opportunity for full discussion and consideration of every question involved by the report.

After the noon recess, the discussion of the Code was taken up systematically beginning with the first page of the pamphlet. The suggestions offered in writing had been classified with respect to their references to each page of the pamphlet and the work of considering the various recommendations was thus greatly facilitated. The early part of the afternoon was given up to the discussion of the engineers and firemen's license law and the boiler inspection law. The latter was considered from the standpoint of the users and operators as well as also of the insurance companies and the boiler manufacturers, and the question of the Boiler Control Boards that would become necessary in the various states discussed. Following this, Parts I and II of the Code were taken up and certain of the requirements discussed at length; among these were such items as boiler ratings, shearing strengths of rivets, factors of safety, the length of life of lap-seamed boilers, the safety valve formula, the question of safety valves on superheaters, fusible plugs, bracing of heads, etc.

The discussion upon safety valves occupied a considerable portion of the afternoon but was finally discontinued to enable a delegation from the National Association of Thresher Manufacturers to be heard. This committee favored a continuation of the O. G. type of flange on boilers under 50-h.p. nominal rating. Following this, a committee of the American Society of Heating and Ventilating Engineers was heard, and then the meeting was thrown open to the discussion of the question of boiler material; this discussion was continued without recess until the adjournment at 8.30 p.m.

The feature of the second day of the hearing, September 16, was a number of conferences with representatives of different associations which were undertaken by the committee in order to better enable them to determine the specific requirements of the industries affected. The first group to be heard was representatives of the lap-welded tube interests, who objected to the discrimination resulting from certain features of the report affecting the use of lap-welded tubes in boilers. As they, however, had no constructive criticism to offer, not having had an opportunity to meet and prepare their recommendations, it was arranged that their hearing be adjourned until September 26 to give them an opportunity to meet and prepare a complete specification for boiler tubes that should be satisfactory to all interests involved.

A committee composed of the representatives of the American Boiler Manufacturers Association and the National Tubular Boiler Manufacturers Association conducted a private meeting that lasted throughout the day of September 16, in which the preliminary report was discussed from all standpoints and very carefully considered for its application to the boiler manufacturing industry. The result of their work was a comment on the specification for boiler material suggested by the Association of American Steel Manufacturers, some further criticisms of the details of the report and finally the formation of a permanent organization for the purpose of taking definite action for the introduction of the Code after its acceptance by the Society, into the legislatures of the various states. This meeting was finally adjourned until Tuesday, September 29, on which date a general meeting of boiler manufacturers was called at Pittsburgh, Pa., for the purpose of furthering the work initiated here.

On September 26, the committee representing the boiler tube interests met in second conference with the Boiler Specifications Committee and presented a complete specification that is proposed for boiler tubes, both lap-welded and seamless. Also a representative of the National Association of Master Steam and Hot Water Fitters appeared before the committee and expressed the approval of that Association of the committee's work and particularly the changes recommended by National Boiler and Radiator Manufacturers Association and the American Society of Heating and Ventilating Engineers. Following this, conferences were held with representatives of the railroad associations and the safety valve manufacturers, both of which were, however, adjourned to later dates at which specific recommendations yet to be formulated, will be presented.

APPLICATIONS FOR MEMBERSHIP

Members are requested to scrutinize with the utmost care the following list of candidates who have filed applications for membership in the Society. These are sub-divided according to the grades for which their age would qualify them and not with regard to professional qualifications, i.e., the age of those under the first heading would place them under either Member, Associate or Associate-Member, those in the next class under Associate-Member or Junior, while those in the third class are qualified for Junior grade only. The Membership Committee, and in turn the Council, urge the members to assume their share of the responsibility of receiving these candidates into the Membership by advising the Secretary promptly of anyone whose eligibility for membership is in any way questioned. Members will be furnished with complete records of any candidate thus questioned. All correspondence in regard to such matters is strictly confidential and is solely for the good of the Society, which it is the duty of every member to promote. These candidates will

be balloted upon by the Council unless objection is received before October 10, 1914.

FOR CONSIDERATION AS MEMBER, ASSOCIATE OR ASSOCIATE-MEMBER

BACHE-WIIG, OLAI, Ch. Engr. & Supt., Wausau Sulphate Fibre Co., Mosinee, Wis.

BERGMAN, JULIUS G., Ch. Draftsman, Arizona Copper Co., Ltd., Morenci, Ariz.

BLACKBURN, WM. A., Asst. Genl. Foreman, Cadillac Motor Co., Detroit, Mich.

BLICKMAN, JOHN A., Asst. Supt., Section Switchboards and Detail Apparatus, Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

BROOKS, CHARLES C., Asst. Western Mgr., Mead-Morrison Mfg. Co., Chicago, Ill.

BRUCE, JAMES M., Mgr. of Salesmen, Smoking Tobacco Dept., American Tobacco Co., New York

BRUSH, ALANSON P., Cons. Engr., 203 Boyer Bldg., Detroit, Mich.

BURT, GEORGE R., Rep. & Cons. Engr., American & British Mfg. Co., Providence, R. I.

CASE, WILLARD L., Secy. & Genl. Wks. Mgr., The Salt's Textile Mfg. Co., Bridgeport, Conn.

CHAMPION, ALBERT, Genl. Mgr. & Vice-Pres., Champion Ignition Co., Flint, Mich.

DAVIS, GEORGE C., Pres., G. M. Davis Regulator Co., Chicago, Ill.

DOBYNE, STEVENSON A., Genl. Supt., Champion Shoe Machinery Co., St. Louis, Mo.

EASTWOOD, EVERETT O., Prof., Univ. of Washington, Seattle, Wash.

FOSTER, FRANK A., Prof. of Engrg. & Freehand Drawing, Tangshan Engrg. College, Tangshan, North China

GIBSON, ELMER E., Asst. Supt., Jones Speedometer Co., New Rochelle, N. Y.

HARRIS, GEORGE E., 60 Granger St., Buffalo, N. Y.

JOHNSON, WM. B., Mech. Engr., Acme Wire Co., New Haven, Conn.

LUKE, WM. A., Mgr., The West Virginia Pulp & Paper Co., Covington, Va.

LYNCH, THOMAS M., Asst. Mgr., Buena Vista Extract Co., Buena Vista, Va.

MCCANDLISH, ROBERT M., Pres., R. M. McCandlish Engrg. Co., Kansas City, Mo.

MILLER, D. W., Rep. Engr., Minneapolis Steel & Mchy. Co., Minneapolis, Minn.

MISOSTOW, HENRY, Smoke Dept., City of Chicago, Chicago, Ill.

MONTE, ROBERT A., Draftsman, Regina Co., Rahway, N. J.

MORRIS, W. CULLEN, Engr. of Constr., Consolidated Gas Co. of N. Y., New York

OAKES, ERNEST A., Developing Own Inventions, 184 W. Church St., Seymour, Conn.

OAKLEY, CLIFFORD H., Pres., Essex Rubber Co., Inc., Trenton, N. J.

PFEFFER, JOHN E., Vice-Pres., Continental Engrg. Co., Chicago, Ill.

POOK, C. H. O., with Canadian Westinghouse Co., Ltd., Hamilton, Canada

RICHARDSON, CHAS. F., Ch. Mech. Engr., The Taft-Peirce Mfg. Co., Woonsocket, R. I.

SCHMITT, F. E., Assoc. Editor, "Engineering News," New York

SEARBY, WM., Supt., Hawaiian Commercial & Sugar Co.'s Mills, Puunene, T. H.

SLOAT, HALBERT M., Rep., in Brazil, American Locomotive Co., Rio de Janeiro, Brazil

SMALLBONE, HARRY E., Pres. & Supt., Smallbone Mfg. Co., Chicago, Ill.

SULENTIC, STANISLAUS A., Constr. Engr., The Prairie Oil & Gas Co., Independence, Kansas

SULLIVAN, FRANK A., Ch. Draftsman, Ordnance Drawing Room, Bethlehem Steel Co., S. Bethlehem, Pa.

SYKES, WALTER J., Head, Mech. Dept., Panama Pacific International Exposition, San Francisco, Cal.

THOMPSON, BURT D., Foreman, Mch. Shop, National Twist Drill & Tool Co., Detroit, Mich.

WAINWRIGHT, ARTHUR V., Vice-Pres. & Genl. Mgr., American Public Service Co., Abilene, Texas

WELLS, DAVID E., Mech. Engr., Milliken Bros., Inc., Mariners Harbor, N. Y.

WILKINSON, CLARENCE M., Engr. & Supt. of Constr. for M. C. Schwab, Cons. Engr., New York

FOR CONSIDERATION AS ASSOCIATE-MEMBER OR JUNIOR

BASS, WILLARD J., Erecting Engr., Armour & Co., Chicago, Ill.

DEVISSER, JOHN H., Treas. & Sales Engr., The Coon-DeVisser Co., Detroit, Mich.

EARLE, FREDERIC E., Pres. & Treas., F. E. Earle Co., New Bedford, Mass.

ELAM, ARTHUR M., Charge of Drawing, Columbus Trade School, Columbus, Ohio

ERVIN, JOHN F., Foundry Expert, Deere & Co., Moline, Ill.

GRANER, ADOLF, Production Engr., Eisemann Magneto Co., Brooklyn, N. Y.

HARDMAN, FREDERICK J., Asst. Examiner, U. S. Patent Office, Washington, D. C.

HAVEN, KENT C., Student Engr., H. H. Franklin Mfg. Co., Syracuse, N. Y.

HOAR, JOHN C., Mech. Engr., Shadyside Plant, Barrett Mfg. Co., New York

ILLINGSWORTH, GEORGE C., So. Rep., Murphy Iron Works, Detroit, Mich.

KOZA, ALBERT H., Mgr., Statistical Dept., Goodyear Tire & Rubber Co., Akron, Ohio

NIBECKER, KARL, Steam Engr., The Youngstown Sheet & Tube Co., Youngstown, Ohio

SONN, GEORGE P., With Union Metallic Cartridge Co., Bridgeport, Conn.

WOLFGANG, WM. H., Designer, National Supply Co., Toledo, Ohio

FOR CONSIDERATION AS JUNIOR

BERANGER, JOSEPH P., Ch. Engr., Central Ansonia Sugar Co., San Domingo, P. R.

CARTER, CLIFFORD R., Asst. Mgr., Standard Oil Co. of N. Y., Soochow, China

CHUTE, STANLEY J., Asst. to Mech. Engr., Pennsylvania Coal & Coke Corp., New York

CORNWELL, HOBART V., Asst. to Mech. Engr., Pennsylvania Coal & Coke Corp., New York

DUTCHER, CHARLES H., JR., Draftsman, Interborough Rapid Transit Co., New York

FOSTER, ROBERT J., Mech. Engr., Eberhard Faber Pencil Co., Brooklyn, N. Y.

GREEN, HAROLD L., Industrial Engr., C. H. Scovell & Co., Boston, Mass.

HILL, ROWLAND F., Ch. Draftsman, The National Supply Co., Toledo, Ohio

HOFFMAN, ROSCOE C., Designing Engr. & Ch. Draftsman, Haynes Automobile Co., Kokomo, Ind.

NIGH, GEORGE W., Special Apprentice, Rock Island & Pacific Railroad, Des Moines, Iowa

NETHERWOOD, JOSEPH S., Head Draftsman, Motive Power Dept., Sunset Central Lines, Houston, Texas

OHMER, JOHN F., JR., Sales Dept., Ohmer Fare Register Co., Dayton, Ohio

PANUSKA, FRANK C., Instr. of Industrial Arts, Teachers College, Columbia Univ., New York

PLATT, LOUIS J., Industrial Gas Fuel Rep., Public Service Gas Co., Newark, N. J.

ROCKWELL, SHERBURNE B., Asst. Supt., International Silver Co., Waterbury, Conn.

ROESEN, ROBERT H., With American Machine & Foundry Co., Brooklyn, N. Y.

SCHUBART, FRANK H., Engr., Wheeler Condenser & Engrg. Co., Carteret, N. J.

SCOTT, THOMAS W., Apprentice Gas Producer Erector, Smith Gas Pwr. Co., Lexington, Ohio

TERZIAN, HARUTYUN G., Cadet Engr., Gas Works, Syracuse Lighting Co., Syracuse, N. Y.

WATERS, EVERETT O., Instr. in Mch. Design, S.S.S., Yale Univ., New Haven, Conn.

WELFORD, PERCY G., Asst. to Wks. Mgr., Canada Mchy. Corp., Ltd., Galt, Ont., Canada

PROMOTION FROM ASSOCIATE

DUNKLE, H. EDWARD, Draftsman, Semet-Solvay Co., Syracuse, N. Y.

PROMOTION FROM JUNIOR

BAKER, CHARLES H., Mech. Engr., Public Service Elec. Co., Newark, N. J.

HERSEY, MAYO D., Asst. Physicist, U. S. Bureau of Standards, Washington, D. C.

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THE FRANKLIN MEDAL

The Franklin Medal, to be awarded in recognition of distinguished achievements in science and technology, has recently been founded by Samuel Insull, president of the Chicago Commonwealth Edison Company and a member of the Franklin Institute, by which it will be awarded. The medal will be of gold and the accepted design, by R. Tait McKenzie, shows a bust of Benjamin Franklin on the obverse side, and on the reverse side the words, "Awarded by the Franklin Institute for Signal Eminent Service in Science." It is the intention to show recognition of the total contributions of individuals to science or to the applications of physical science to industry, rather than of any single invention or discovery, however important.

KELVIN MEMORIAL AWARD

The Executive Committee of the Institution of Civil Engineers has under consideration the question of the disposal of the balance of the Kelvin Memorial Fund, now in their hands. The total sum received to the credit of this fund amounted to £1704, of which £1222 was expended in connection with the Kelvin Memorial Window placed in Westminster Abbey.

It has been recommended that this balance of £481 be applied to the establishment of a Kelvin Gold Medal, to be awarded triennally as a mark of distinction in engineering work or investigation, along the line of Lord Kelvin's own interests. The first award will probably be made in the spring of 1915.

CHANGE OF ADDRESS

Members who have changed their addresses during the past year and who have not notified the Society are requested to fill out the blank below as indicated and return it to the Society. These corrections are for use in the Year Book for 1915, and should be received by December 15 to insure their appearance.

(Cut off along this line)

The American Society of Mechanical Engineers

29 West 39th Street, New York

ADDRESS BLANK

(Fill in every space below. Write distinctly. Typewriting preferred)

Underline the Mail Address

Name.....

Title or Position.....

Name of Firm.....

Business Address.....

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Home Address.....

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A new Year Book is about to go to press. Please return this sheet not later than December 15, 1914